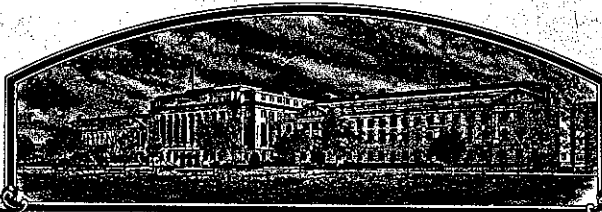


No.

8300001



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME;

Campbell Soup Company  
Campbell Institute for Research & Technology

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOMATO

'Easy Harvest'



Attest

*Kenneth H. ...*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 26th day of April in the year of our Lord one thousand nine hundred and eighty-five.

*John R. Block*  
Secretary of Agriculture

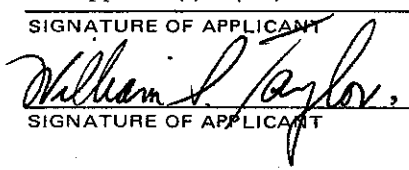
U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

FORM APPROVED: OMB NO.0581-0055

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1. NAME OF APPLICANT(S) Campbell Soup Company Campbell Institute for Research & Technology		2. TEMPORARY DESIGNATION C4135	3. VARIETY NAME Easy Harvest
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) P-152 R5 Rd 12 Napoleon, Ohio 43545		5. PHONE (Include area code) (419) 592-8015	FOR OFFICIAL USE ONLY PVPO NUMBER <b>8300001</b>
6. GENUS AND SPECIES NAME <u>Lycopersicon esculentum</u>	7. FAMILY NAME (Botanical) <u>Solanaceae</u>		FILING DATE 10/1/82 TIME 2:00 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.
8. KIND NAME Tomato	9. DATE OF DETERMINATION March 1, 1981		FEES RECEIVED AMOUNT FOR FILING \$ 500.00 DATE 10/1/82 AMOUNT FOR CERTIFICATE \$ 250.00 DATE 4/8/85
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation			12. DATE OF INCORPORATION November 23, 1922
11. IF INCORPORATED, GIVE STATE OF INCORPORATION New Jersey			
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Mr. William S. Taylor Campbell Institute for Research & Technology P-152 R5 Rd 12 Napoleon, Ohio 43545			
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED			
a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)		c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)	
b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement		d. <input checked="" type="checkbox"/> Exhibit D, Additional Description of the Variety	
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input checked="" type="checkbox"/> No			
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No		17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> Foundation <input type="checkbox"/> Registered <input type="checkbox"/> Certified	
18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No			
19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No			
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF APPLICANT  Research Scientist, Campbell Institute for Research & Technology			DATE September 28, 1982
SIGNATURE OF APPLICANT			DATE 1

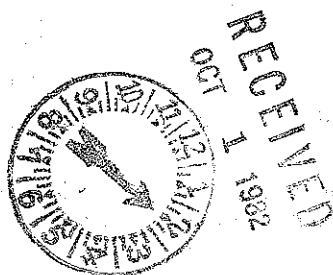
## INSTRUCTIONS

**General:** Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Department of Agriculture, Agricultural Marketing Service, Livestock, Meat, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

### Item

- 9 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 14a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 14b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 14c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 14d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 15 If "Yes" is specified (*seed of this variety be sold by variety name only as a class of certified seed*) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "No," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 16 See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

GPO 890-698

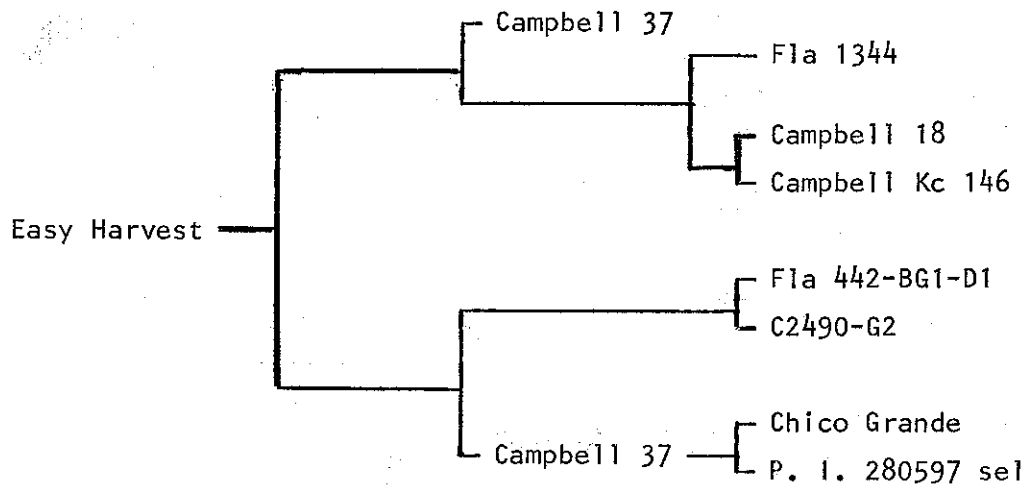


8300001

TOMATO

"Easy Harvest"

14 A. Exhibit A: Pedigree



"Easy Harvest" is a fifth generation selection derived from seven crosses and selections therefrom.

"Easy Harvest" appears stable and uniform through six generations of selfing and in our seed increase program. No offtypes were reported from over 1500 acres planted to "Easy Harvest" during 1982, nor have offtypes appeared in trial plots during the years 1979 through 1982.

8300001

14 B. Exhibit B: Novelty Statement

"Easy Harvest" is most similar to "Campbell 37"; however, "Easy Harvest" has smaller sized fruit (65 g vs 86 g) and is resistant to Verticillium wilt, Verticillium albo-atrum; whereas, "Campbell 37" is susceptible.

See attached Table 1 for fruit size data from replicated trials.

Exhibit B. p.2

Table 1. Comparative Tomato Fruit Size of "Campbell 37"  
and "Easy Harvest".

Year	Location	Grams per fruit		
		Campbell 37	Easy Harvest	LSD .05
1982	McClure, Ohio	85	62	6
	Napoleon, Ohio	87	68	9
1981	McClure, Ohio	96	75	10
1980	McClure, Ohio	93	68	6
	Napoleon, Ohio	88	73	14
1979	McClure, Ohio	93	69	7
	Napoleon, Ohio	89	69	7
1978	McClure, Ohio	72	59	8

Table 2. Field Performance of "Campbell 37" and "Easy Harvest".

Year	Location	Usable Yield, Tons/Acre			% Green Fruit at Harvest		
		Campbell 37	Easy Harvest	LSD .05	Campbell 37	Easy Harvest	LSD .05
1982	McClure, Ohio	22.4	22.8	5.2	22	20	5
	Napoleon, Ohio	25.3	22.2	4.8	27	28	6
	Napoleon, Ohio	24.0	23.9	3.9	11	16	5
1981	McClure, Ohio	25.3	26.7	7.4	18	18	8
1980	McClure, Ohio	14.5	16.3	3.2	26	24	10
	Napoleon, Ohio	17.9	16.6	3.8	11	11	NS
1979	McClure, Ohio	22.5	29.3	6.3	26	14	9
	Napoleon, Ohio	21.3	20.8	6.3	30	32	NS
1978	McClure, Ohio	29.8	29.0	3.5	20	13	6

Exhibit B, p. 4.

Table 3. Comparison of Heat Processed Puree Color from Full-Ripe Tomatoes of "Easy Harvest" and "Campbell 37".

Year	Location	Color Index*		LSD .05
		Campbell 37	Easy Harvest	
1982	McClure, Ohio	1.99	2.08	.05
	Napoleon, Ohio	1.88	2.01	.05
	Napoleon, Ohio	1.97	2.01	.06
1981	McClure, Ohio	2.06	2.15	.04
1980	McClure, Ohio	2.01	2.15	.04
	Napoleon, Ohio	1.94	2.07	.05
1979	McClure, Ohio	1.94	2.06	.04
	Napoleon, Ohio	2.03	2.05	.07
1978	McClure, Ohio	2.11	2.18	.06

\* Puree color was measured by a Gardner XL10 Color Difference Meter standardized for L, a, and b values, using the Tomato Red Standard Plate. The L, a, and b values were determined from the sample and the Color Index was calculated as the a/b ratio.



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, MEAT, GRAIN AND SEED DIVISION  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Tomato)

**OBJECTIVE DESCRIPTION OF VARIETY**  
TOMATO (*Lycopersicon esculentum* Mill.)

NAME OF APPLICANT(S) Campbell Soup Company Campbell Institute for Research & Technology	TEMPORARY DESIGNATION C4135	VARIETY NAME Easy Harvest
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) P-152 R5 Road 12 Napoleon, Ohio 43545		FOR OFFICIAL USE ONLY PVPO NUMBER <b>83000001</b>

Choose responses for the following characters which best fit your variety. Complete this form as fully as possible for best characterization of the variety. When a single quantitative value is requested (e.g., fruit weight), your answer should be the mean of an adequate-sized, unbiased sample of plants. Use leading zeroes when necessary (e.g.,   or   , etc.). The applicant variety should be compared with at least one well-known standard check variety of the same type (see list of recommended check varieties below), and grown in the same trials. The characters on this form should be described from plants grown under normal conditions of culture for the variety. Indicate by a check whether trial data are from greenhouse \_\_\_\_\_ or field ☒ plantings. Trials direct-seeded \_\_\_\_\_ or transplanted ☒; staked \_\_\_\_\_ or unstaked ☒. Give locations and dates of seeding and transplanting here: \_\_\_\_\_

Napoleon, OH - seeded 3-30-82, transplanted 5-08-82

Napoleon, OH - seeded 4-05-82, transplanted 5-13-82

McClure, OH - seeded 4-01-82, transplanted 5-12-82

COMPARISONS SHOULD BE MADE TO ONE OR MORE CHECK VARIETIES IN THE FOLLOWING LIST, IF AT ALL POSSIBLE. ENTER THE NUMBER OF THE CHECK IN BOXES WHERE IDENTITY OF CHECK IS REQUESTED.

- |                  |                       |               |                            |
|------------------|-----------------------|---------------|----------------------------|
| 1 = Ace 55 VF    | 7 = Homestead 24      | 13 = Red Rock | 19 = VF 134                |
| 2 = Campbell 37  | 8 = Marglobe          | 14 = Roma VF  | 20 = US 28                 |
| 3 = Chico III    | 9 = Murietta          | 15 = Rutgers  | 21 = VF 145 B 7879         |
| 4 = Flora Dade   | 10 = New Yorker       | 16 = Sunray   | 22 = Other (Specify) _____ |
| 5 = Florida MH-1 | 11 = Ohio MR-13       | 17 = Tropic   |                            |
| 6 = Heinz 1350   | 12 = Red Cherry Large | 18 = UC 82    |                            |

**1. SEEDLING:**

Anthocyanin in hypocotyl of 2-15 cm. seedling: 1 = Absent 2 = Present  Habit of 3-4 week old seedling: 1 = Normal 2 = Compact

**2. MATURE PLANT (at maximum vegetative development):**

Cm. Height

Growth: 1 = Indeterminate 2 = Determinate

Form: 1 = Lax, open 2 = Normal 3 = Compact 4 = Dwarf 5 = Brachytic

Size of canopy (compared to others of similar type): 1 = Small 2 = Medium 3 = Large

Habit: 1 = Sprawling (decumbent) 2 = Semi-erect 3 = Erect ('Dwarf Champion')

**3. STEM:**

Branching: 1 = Sparse ('Brehm's Solid Red', 'Fireball') 2 = Intermediate ('Westover') 3 = Profuse ('UC 82')

Branching at cotyledonary or first leafy node: 1 = Present 2 = Absent

No. of nodes below the first inflorescence: 1 = 1-4 2 = 4-7 3 = 7-10 4 = 10 or more

No. of nodes between early (1st - 2nd, 2nd - 3rd) inflorescences.  No. of nodes between later-developing inflorescences.

Pubescence on younger stems: 1 = Smooth (no long hairs) 2 = Sparsely hairy (scattered long hairs) 3 = Moderately hairy 4 = Densely hairy or wooly

**4. LEAF (mature leaf beneath the 3rd inflorescence):**

Type: 1 = Tomato 2 = Potato ('Trip-L-Crop')  Morphology (choose illustration on pg. 5 of this form that is most similar)

Margins of major leaflets: 1 = Nearly entire 2 = Shallowly toothed or scalloped 3 = Deeply toothed or cut, esp. towards base

Marginal rolling or wiltiness: 1 = Absent 2 = Slight 3 = Moderate 4 = Strong

Onset of leaflet rolling: 1 = Early-season 2 = Mid-season 3 = Late season

## 4. LEAF (mature leaf beneath the 3rd inflorescence -- continued):

- 1 Surface of major leaflets: 1 = Smooth 2 = Rugose (bumpy or veiny)  
 2 Pubescence: 1 = Smooth (no long hairs) 2 = Normal 3 = Hirsute 4 = Woolly

## 5. INFLORESCENCE (make observations on 3rd inflorescence):

- 1 Type: 1 = Simple 2 = Forked (2 major axes) 3 = Compound (much branched)  
 0 5 Number of flowers in inflorescence, average  
 1 Leafy or "running" inflorescences: 1 = Absent 2 = Occasional 3 = Frequent

## 6. FLOWER:

- 1 Calyx: 1 = Normal, lobes awl-shaped 2 = Macrocalyx, lobes large, leaflike 3 = Fleshy  
 2 Calyx-lobes: 1 = Shorter than corolla 2 = Approx. equalling corolla 3 = Distinctly longer than corolla  
 1 Corolla color: 1 = Yellow 2 = Old gold 3 = White or tan  
 2 Style pubescence: 1 = Absent 2 = Sparse 3 = Dense  
 1 Anthers: 1 = All fused into tube 2 = Separating into 2 or more groups at anthesis  
 1 Fasciation (1st flower of 2nd or 3rd inflorescence): 1 = Absent 2 = Occasionally present 3 = Frequently present

## 7. FRUIT (3rd fruit of 2nd or 3rd cluster): For the first 5 characters below, match your variety with the most similar illustration on pg. 5 of this form.

- 9 Typical fruit shape: 3 Shape of transverse section: 2 Shape of stem end:  
 4 Shape of blossom end: 1 Shape of pistil scar:

- 2 Abscission layer: 1 = Present (pedicellate) 2 = Absent (jointless) 2 Point of detachment of fruit at harvest: 1 = At pedicel joint  
 mm length of pedicel (from joint to calyx attachment) 2 = At calyx attachment

- 0 5 6 mm length of mature fruit (stem axis) 0 6 4 mm length, check var. no. 0 2  
 0 4 7 mm diameter of fruit at widest point 0 5 0 mm diameter, check var. no. 0 2  
 0 6 5 g weight of mature fruit 0 8 6 g weight, check var. no. 0 2

- 2 No. of locules: 1 = Two 2 = Three and four 3 = Five or more  
 1 Fruit surface: 1 = Smooth 2 = Slightly rough 3 = Moderately rough or ribbed  
 3 Fruit base color (mature-green stage): 1 = Light green ('Lanai', 'VF145-F5') 2 = Light gray-green ('Westover')  
 3 = Apple or medium green ('Heinz 1439 VF') 4 = Yellow green  
 5 = Dark green  
 1 Fruit pattern (mature-green stage): 1 = Uniform green 2 = Green-shouldered 3 = Radial stripes on sides of fruit  
 Shoulder color if different from base: 1 = Dark green 2 = Grey green 3 = Yellow green  
 5 Fruit color, full-ripe: 1 = White 2 = Yellow 3 = Orange 4 = Pink 5 = Red  
 6 = Brownish 7 = Greenish 8 = Other (Specify)  
 3 Flesh color, full-ripe: 1 = Yellow 2 = Pink 3 = Red/Crimson 4 = Orange 5 = Other (Specify)  
 1 Flesh color: 1 = Uniform 2 = With lighter and darker areas in walls  
 3 Locular gel color of table-ripe fruit: 1 = Green 2 = Yellow 3 = Red  
 2 Ripening: 1 = Blossom-to-stem end 2 = Uniform

## 7. FRUIT (3rd fruit of 2nd or 3rd cluster): Continued

<input type="text" value="2"/>	Ripening:	1 = Inside out	2 = Uniformly	3 = Outside in	<input type="text" value="2"/>	Stem scar size:	1 = Small ('Roma')
<input type="text" value="2"/>	Epidermis color:	1 = Colorless	2 = Yellow			2 = Medium ('Rutgers')	3 = Large
<input type="text" value="1"/>	Epidermis:	1 = Normal	2 = Easy-peel		<input type="text" value="2"/>	Core:	1 = Coreless (absent or smaller than 6x6 mm)
<input type="text" value="2"/>	Epidermis texture:	1 = Tender	2 = Average	3 = Tough		2 = Present	
<input type="text" value="2"/>	Thickness of pericarp	<input type="text" value="3"/>			Thickness of pericarp, check var. no.	<input type="text" value="0"/> <input type="text" value="2"/>	
		1 = Under 3 mm	2 = 3-6 mm	3 = 6-9 mm		4 = Over 9 mm	

## 8. RESISTANCE TO FRUIT DISORDERS (Use code: 0 = Unknown, 1 = Susceptible, 2 = Resistant)

<input type="text" value="1"/>	Blossom end rot	<input type="text" value="2"/>	Catface	<input type="text" value="0"/>	Fruit pox	<input type="text" value="1"/>	Zippering
<input type="text" value="0"/>	Blotchy ripening	<input type="text" value="2"/>	Cracking, concentric	<input type="text" value="0"/>	Gold fleck	<input type="text" value=""/>	Other (Specify)
<input type="text" value="2"/>	Bursting	<input type="text" value="2"/>	Cracking, radial	<input type="text" value="0"/>	Graywall		

## 9. DISEASE AND PEST REACTION (Use code: 0 = Not tested, 1 = Susceptible, 2 = Resistant). NOTE: If claim of novelty is based wholly or in substantial part upon disease resistance, trial data should be appended. These should specify the method of testing, the reaction of the application variety, and reaction of well-known check varieties grown in the trial (identified by name).

## VIRAL DISEASES:

<input type="text" value="0"/>	Cucumber mosaic	<input type="text" value="0"/>	Tobacco mosaic, Race 0	<input type="text" value="0"/>	Tobacco mosaic, Race 2 <sup>2</sup>
<input type="text" value="0"/>	Curly top	<input type="text" value="0"/>	Tobacco mosaic, Race 1	<input type="text" value="0"/>	Tomato spotted wilt
<input type="text" value="0"/>	Potato-Y virus	<input type="text" value="0"/>	Tobacco mosaic, Race 2	<input type="text" value="0"/>	Tomato yellows
<input type="text" value=""/>	Other virus (Specify) _____				

## BACTERIAL DISEASES:

<input type="text" value="0"/>	Bacterial canker ( <i>Corynebacterium michiganense</i> )	<input type="text" value="1"/>	Bacterial spot ( <i>Xanthomonas vesicatorum</i> )
<input type="text" value="1"/>	Bacterial soft rot ( <i>Erwinia carotovora</i> )	<input type="text" value="0"/>	Bacterial wilt, ( <i>Pseudomonas solanacearum</i> )
<input type="text" value="1"/>	Bacterial speck ( <i>Pseudomonas tomato</i> )	<input type="text" value=""/>	Other bacterial disease (Specify) _____

## FUNGAL DISEASES:

<input type="text" value="1"/>	Anthracnose ( <i>Colletotrichum</i> spp.)	<input type="text" value="0"/>	Leaf mold, Race 1 ( <i>Cladosporium fulvum</i> )
<input type="text" value="0"/>	Brown root rot or corky root, ( <i>Pyrenochaeta lycopersici</i> )	<input type="text" value="0"/>	Leaf mold, Race 2
<input type="text" value="1"/>	Collar rot or stem canker, ( <i>Alternaria solani</i> )	<input type="text" value="0"/>	Leaf mold, Race 3
<input type="text" value="1"/>	Early blight defoliation, ( <i>Alternaria solani</i> )	<input type="text" value=""/>	Leaf mold, other races (Specify) _____
<input type="text" value="2"/>	Fusarium wilt, Race 1, ( <i>F. oxysporum</i> f. <i>lycopersici</i> )	<input type="text" value="0"/>	Nailhead spot ( <i>Alternaria tomato</i> )
<input type="text" value="0"/>	Fusarium wilt, Race 2	<input type="text" value="0"/>	Septoria leafspot ( <i>S. lycopersici</i> )
<input type="text" value="0"/>	Fusarium wilt, Race 3	<input type="text" value="0"/>	Target leafspot ( <i>Corynespora casicola</i> )
<input type="text" value="0"/>	Gray leaf spot ( <i>Stemphylium</i> spp.)	<input type="text" value="2"/>	Verticillium wilt, Race 1 ( <i>V. albo-atrum</i> )
<input type="text" value="0"/>	Late blight, Race 0, ( <i>Phytophthora infestans</i> )	<input type="text" value="0"/>	Verticillium wilt, Race 2
<input type="text" value="0"/>	Late blight, Race 1	<input type="text" value=""/>	Other fungal disease _____
		<input type="text" value=""/>	Other fungal disease _____

## 9. DISEASE AND PEST REACTION (Use code: 0 = Not tested, 1 = Susceptible, 2 = Resistant - Continued)

## INSECTS AND PESTS:

<input checked="" type="checkbox"/> 1	Colorado potato beetle ( <i>Leptinotarsa decemlineata</i> )	<input checked="" type="checkbox"/> 1	Tomato hornworm ( <i>Manduca quinquemaculata</i> )
<input type="checkbox"/> 0	Southern root knot nematode ( <i>Meloidogyne incognita</i> )	<input checked="" type="checkbox"/> 1	Tomato fruitworm ( <i>Heliothis zea</i> )
<input type="checkbox"/> 0	Spider mites ( <i>Tetranychus</i> spp.)	<input checked="" type="checkbox"/> 1	Whitefly ( <i>Trialeurodes vaporariorum</i> )
<input checked="" type="checkbox"/> 1	Sugar beet army worm ( <i>Spodoptera exigua</i> )	<input type="checkbox"/>	Other (Specify) _____
<input checked="" type="checkbox"/> 1	Tobacco flea beetle ( <i>Epitrix hirtipennis</i> )		

## POLLUTANTS:

<input type="checkbox"/> 0	Ozone	<input type="checkbox"/> 0	Sulfur dioxide	<input type="checkbox"/>	Other (Specify) _____
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## 10. CHEMISTRY AND COMPOSITION OF FULL-RIPE FRUITS: Suggested test methods may be found in "Tomato Products," 5th ed., National Canners Assn. Bull. 27-L. Please specify test methods or give a reference to methods used. Fill in table below with values for the new variety and for at least one well-known check variety of similar type grown in the same trial. Specify names or numbers of check varieties.

	SUBMITTED VARIETY	Check Variety 2	Check Variety Campbell 38	Check Variety
pH	4.44	4.37	4.41	
Titrateable acidity, as % citric	.301	.288	.317	
Total solids (dry matter, seeds and skin removed)	5.8	5.7	6.0	
Soluble solids, as °Brix	5.4	5.3	5.6	

## 11. PHENOLOGY: Express length of developmental stages either as calendar days or as heat units (growing degree days), in degrees Celsius. If heat units are used, indicate the base temperature used in their calculation here \_\_\_\_\_ °C. See paper by Warnock under "References" for method. Give comparative data for at least one check variety; identify checks by name or by number from table on page 1.

	APPLICATION VARIETY	Check variety 2	Check variety Campbell 38	Check variety
Seeding to 50% flower (1 open flower on 50% of plants)	47 days	45 days	50 days	
Seed to once-over harvest (if applicable)	141 days	140 days	148 days	

☒ 2 Fruiting season: 1 = Long ('Marglobe') 2 = Medium ('Westover') 3 = Short, concentrated ('VF 145')  
4 = Very concentrated ('UC 82')

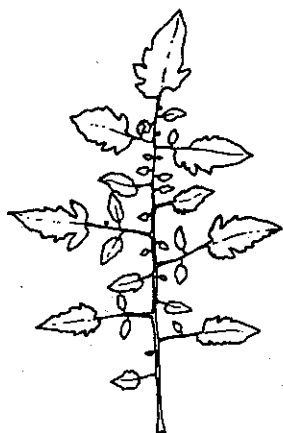
☒ 3 Relative maturity in areas tested: 1 = Early 2 = Medium early 3 = Medium  
4 = Medium late 5 = Late 6 = Variable (if relative maturity is known to differ by location or environment, please explain on separate sheet).

## 12. ADAPTATION: If more than one category applies, list all in rank order.

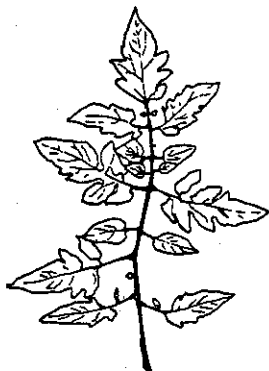
<input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1	Culture:	1 = Field	2 = Greenhouse	
<input type="checkbox"/> 0 <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	Principal use(s):	1 = Home garden	2 = Fresh market	3 = Whole-pack canning
		4 = Concentrated products	5 = Other (Specify)	Juice
<input checked="" type="checkbox"/> 2	Machine harvest:	1 = Not adapted	2 = Adapted	
<input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1	Regions to which adaptation has been demonstrated:	1 = Northeast	2 = Mid Atlantic	3 = Southeast
		5 = Great Plains	6 = South-central	4 = Florida
		9 = California: Sacramento and Upper San Joaquin Valley	7 = Intermountain West	8 = Northwest
		10 = California: Coastal areas	11 = California: Southern San Joaquin Valley & deserts	

## ILLUSTRATIONS OF TOMATO LEAF AND FRUIT CHARACTERISTICS

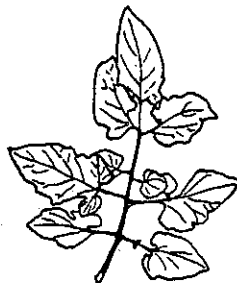
## 4. LEAF: Morphology:



(1)



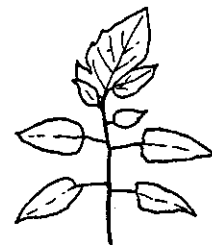
(2)



(3)



(4)

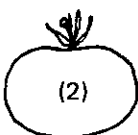


(5)

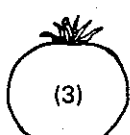
## 7. FRUIT: Typical fruit shape:



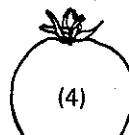
(1)



(2)



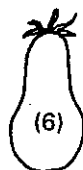
(3)



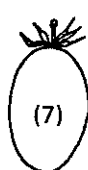
(4)



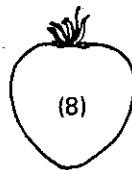
(5)



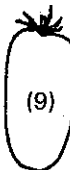
(6)



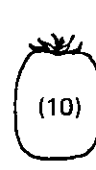
(7)



(8)

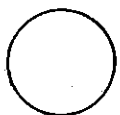


(9)



(10)

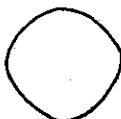
## Shape of transverse section:



1=round



2=flattened

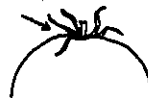


3=angular

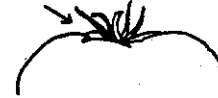


4=irregular

## Shape of stem end:



1=flat



2=indented

## Shape of blossom end:



1=indented



2=flat



3=nipped



4=tapered

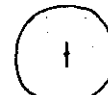
## Shape of pistil scar:



1=dot



2=stellate



3=linear



4=irregular

## REFERENCES

Anonymous, 1976. All About Tomatoes. Ortho Books, Chevron Chemical Co., San Francisco. In three volumes: Midwest/Northeast Edition, West Edition, and South Edition.

Ware, G.W. & J. P. McCollum, 1968. Producing Vegetable Crops. The Interstate Printer & Publishers, Inc., Danville, Illinois. Chapter 30, pp. 451-473, "Tomatoes".

Warnock, S.J. 1978. Using Tomato Heat Units. Leaflet No. 6, Campbell Institute for Agricultural Research, Camden, NJ. 10 p.

Webb, R.E., T. H. Barksdale, & A. K. Stoner, 1973, "Tomatoes", pp. 344-361, in: Nelson, R.R. (Ed.), Breeding Plants for Disease Resistance. Pennsylvania State University Press, University Park.

Young, P.A. & J.W. MacArthur, 1947. Horticultural characters of tomatoes. Bull. Texas Agric. Exper. Station No. 698.

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Item #10. CHEMISTRY AND COMPOSITION OF FULL-RIPE FRUITS -- determined on  
puree from an extractor equipped with an .027 inch screen. canned heat-processed

pH -- on undiluted puree using the glass electrode method.

Titrateable acidity, as % citric -- a 10 ml sample of supernatant from centrifuged  
puree was diluted with 100 ml of distilled  
water plus 1 ml of phenolphthalein; directly titrated using 0.1 normal sodium  
hydroxide until solution started to indicate pink. The ml of sodium hydroxide  
added was multiplied by .064, to give % citric acid.

Total solids -- Refractive index determined from a drop of supernatant on a  
Bausch & Lomb refractometer at 25° C. Conversion chart used  
to obtain % total solids.

Soluble solids -- Same as total solids. Conversion chart used to obtain ° Brix.

14 D. Exhibit D: Additional Description of "Easy Harvest"

"Easy Harvest" is a processing type, machine harvestable tomato, Lycopersicon esculentum.

"Easy Harvest" is similar to "Campbell 37" in plant height, both are of determinate growth, and the canopy of "Easy Harvest" is slightly more dense than that of "Campbell 37".

"Easy Harvest" averages 2 or 3 more upright branches per plant, compared with "Campbell 37".

The leaflet margins of "Easy Harvest" are more deeply cut than the leaflets on "Campbell 37", and leaflet size is slightly smaller for "Easy Harvest".

At mid-season, the foliage color of "Easy Harvest" is a somewhat darker green than "Campbell 37".

Flowering characteristics of "Easy Harvest" and "Campbell 37" are similar.

The fruit of "Easy Harvest" is borne on a jointless pedicel, similar to "Campbell 37".

Both "Easy Harvest" and "Campbell 37" have elongated fruit shapes.

"Easy Harvest" is significantly smaller in fruit size compared with "Campbell 37" (Table 1).

The usable yield from mechanically harvested trials indicates "Easy Harvest" is similar to "Campbell 37" in productivity and similar in time of maturity (Table 2).

"Easy Harvest" has resistance to verticillium wilt, derived from Florida 1344; and resistance to fusarium wilt, derived from Campbell 37. "Campbell 37" is not resistant to verticillium wilt.

"Easy Harvest" is similar to "Campbell 37" in resistance to concentric and radial fruit cracking.

The puree color of "Easy Harvest" is superior to the puree color of "Campbell 37" (Table 3). Other quality characteristics of "Easy Harvest" are similar to those of "Campbell 37", as shown in Item 10 of Exhibit C.